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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/082,308  | 02/26/2002  | Hiroyuki Sakuyama    | R2184.0136/P136     | 2812             |
| 24998   | 7590        | 12/29/2004           | EXAMINER            |                  |
| DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP<br>2101 L Street, NW<br>Washington, DC 20037 |             |                      | COUSO, JOSE L       |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2621                |                  |

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |                     |  |
|------------------------------|-----------------|---------------------|--|
| <b>Office Action Summary</b> | Application No. | <b>Applicant(s)</b> |  |
|                              | 10/082,308      | SAKUYAMA, HIROYUKI  |  |
| Examiner                     | Art Unit        |                     |  |
| Jose L. Couso                | 2621            |                     |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 131 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-3,12-22,24-26 and 28-30 is/are rejected.
- 7) Claim(s) 4-11,23,27 and 31 is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 26 February 2002 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/26/02.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_.

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

**(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.**

2. Claims 1-3, 8, 12, 15, 20-22, 24-26 and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang (U.S. Patent No. 6,115,420).

With regard to claims 1, 20, 24 and 28, Wang describes a part at least reducing the deviation on a pixel having a value deviating from a predetermined range through inverse transform of image data from a frequency domain (see figure 2 and refer for example to column 13, lines 4-35); and a part determining a pixel which should have a value changed in a direction reverse to the deviation based on a character of the inverse transform (see figure 2, element 116 and refer for example to column 8, lines 41-55). The examiner would like to point out that Wang discloses a system (see figure 11) which carries out the method (see figure 1) by using a software program residing in a memory (as discussed in column 22, lines 33-49) thereby accommodating for the requirements of independent claims 1, 20, 24 and 28.

As to claims 2, 21, 25 and 29, Wang describes the character of the inverse transform used by said determining part comprises polarities of elements of a matrix through which the inverse transform is performed (refer for example to column 9, line 51 through column 10, line 9, which discusses accumulation of positive and negative magnitudes).

In regard to claims 3, 22, 26 and 30, Wang describes wherein the character of the inverse transform used by said determining part further comprises absolute values of the elements of the matrix through which the inverse transform is performed (refer for example to column 11, line 40 through column 12, line 67, which discusses absolute values of the pixel differences).

With regard to claim 12, Wang describes wherein the amount by which the part at least reduces the deviation is the same as the amount by which the pixel should have the value changed in the direction reverse to the deviation (refer for example to column 8, lines 41-55).

As to claim 15, Wang describes claimed in claim 1, further comprising a part of switching as to whether the deviation occurring on a pixel is dealt with by causing a predetermined pixel to have a value changed accordingly or by merely rounding the value of the pixel originally having the deviation, based on a quantization rate applied in quantization performed on coefficients of the frequency domain (refer for example to column 7, lines 1-33).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (U.S. Patent No. 6,115,420) in view of Zandi et al. (U.S. Patent No. 5,731,988).

The arguments advanced in section 2 above, as to the applicability of Wang, are incorporated herein.

Although Want does not expressly describe that the inverse transform from the frequency domain is performed on a color difference component of the image data; and the thus-obtained R, G or B value is regarded as the data of the relevant pixel processed, such a technique is well known and widely utilized in the prior art.

Aono discloses an orthogonal transform coding system for image data which provides for the inverse transform from the frequency domain is performed on a color difference component of the image data; and the thus-obtained R, G or B value is regarded as the data of the relevant pixel processed (column 8, lines 35-60) .

Given the teachings of the two references and the same environment of operation, namely that of using a transform on image data, one of ordinary skill in the art at the time the invention was made would have been led in an obvious fashion to provide for performing the inverse transform from the frequency domain on a color difference component of the image data and thus obtaining R, G or B values to be further processed as taught by Aono in the Wang system since both systems are primarily concerned with transforming image data. This is an engineering design, providing for efficiently reconstructing color image data as suggested by Aono (column 2, lines 40-44), which fails to patentably distinguish over the prior art absent some novel and unexpected result.

The other recitations in the claims regarding the color image data components to be processed would follow from the combination of the two references as the individual

components are mathematically defined and thus can be rounded up or down depending upon the desirable outcome.

5. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (U.S. Patent No. 6,115,420) in view of (U.S. Patent No. , ,).

The arguments advanced in section 2 above, as to the applicability of Wang, are incorporated herein.

Although Wang does not expressly describe the image data to undergo the inverse transform comprises image data having undergone S-transform and thus transformed into the frequency domain, where the S-transform has a character such that half the frequency coefficient HH has an quantization error probabilistically minimum among the frequency coefficients LH, HL and HH/2 obtained through the S-transform, such a technique is well known and widely utilized in the prior art.

Keith discloses a compression and decompression with wavelet style and binary style including quantization by device-dependent parser which provides for the image data to undergo the inverse transform comprises image data having undergone S-transform and thus transformed into the frequency domain, where the S-transform has a character such that half the frequency coefficient HH has an quantization error probabilistically minimum among the frequency coefficients LH, HL and HH/2 obtained through the S-transform (refer for example to column 11, line 51 through column 12, line 61 and column 16, line 61 through column 17, line 14).

Given the teachings of the two references and the same environment of operation, namely that of using a transform on image data, one of ordinary skill in the art at the time the invention was made would have been led in an obvious fashion to provide for the image data to undergo the inverse transform comprises image data having undergone S-transform and thus transformed into the frequency domain, where the S-transform has a character such that half the frequency coefficient HH has an quantization error probabilistically minimum among the frequency coefficients LH, HL and HH/2 obtained through the S-transform as taught by Keith in the Wang system since both systems are primarily concerned with transforming image data. This is an engineering design, providing for efficiently reconstructing image data as suggested by Keith (column 3, lines 1-8), which fails to patentably distinguish over the prior art absent some novel and unexpected result.

In regard to claim 19, Keith describes the image data to undergo the inverse transform comprises image data having undergone 5 x 3 wavelet transform or 9 x 7 wavelet transform and thus transformed into the frequency domain (see for example figure 5B which shows a 5 x 3 wavelet transform).

6. Claims 4-11, 23, 27 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is an examiner's statement of reasons for allowance: The prior art of the record fail to teach or suggest singly and/or in combination an image data processing apparatus and method which provides for a part at least reducing the deviation on a pixel having a value deviating from a predetermined range through inverse transform of image data from a frequency domain, and a part determining a pixel which should have a value changed in a direction reverse to the deviation based on a character of the inverse transform, Wherein the character of the said determining part comprises inverse transform used by probabilistic magnitude relationship among products between elements of a matrix through which the inverse transform performed and quantization errors occurring frequency transform coefficients multiplied with the elements, respectively as prescribed for in the claimed invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shapiro, Kwok et al., Knowles et al., Tsai et al., Zandi et al. and Adiletta et al. all disclose systems similar to applicant's claimed invention.

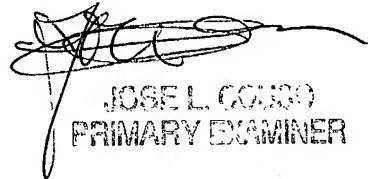
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose L. Couso whose telephone number is (703) 305-4774. The examiner can normally be reached on Monday through Friday from 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8576.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jlc  
December 21, 2004



JOSE L. COUSO  
PRIMARY EXAMINER